Effects of Salt in Boiling Water

Madeline Parker

Today in science class, we did a very interesting experiment. It was a partner experiment about the effects of salt in boiling water. My partner was Lisa. Our task was to firstly, boil water in our beaker with a bunsen burner under it. Secondly, add 2, 4, then 6 pinches of salt in the boiled water. And Finally, to record our observations.

The aim of our experiment was to find out what effects salt had on temperature of boiling water and/or if there were any effects. We were trying to see a difference in temperature, when each pinch of salt was added.

The hypothesis of our experiment was that the more salt added, will increase the temperature of the boiling water. This is because, if you are adding salt to water, the cohesion between water molecules might be changed. Salt molecules might disrupt or strengthen the attraction between water molecules. We were predicting that the more the salt, the higher the boiling temperature of water.

The apparatus/materials used in our experiment were 150ml of water, used to boil and hold the salt, 12 pinches of salt, used so that we could measure the boiling water temperature and differences, a beaker, to hold the water, a stand to hold up the beaker, a bunsen burner, to boil the water, a thermometer, to measure the temperature of the water and a clip, that held the thermometer and kept it attached to the beaker.

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The independent variable = Amount (pinches) of salt

Once the boiling water temperature stopped increasing/decreasing, Lisa and I added 2 pinches of salt to 150 ml of water. We repeated the experiment by adding 2 pinches, 4 pinches, then 6 pinches of salt. That is why it is the independent variable, because the amount of salt changed each time.

The dependent variable = temperature.

It was temperature, because we measured the temperature of the boiling water using thermometer and used it for our final data collection. That is why temperature was the dependent variable.

Method

Lisa and I completed this experiment by first, rinsing out the beaker and getting 150ml water to put in the beaker, which we put on top of the stand. Second, we got a bunsen burner to put under the stand and beaker. We then lit the bunsen burner, and started boiling the 150ml water, with the help of Michael. After the temperature reached a degree and stayed at that point, we added 2 pinches of salt and stir the salt solution using a stirrer to ensure that the salt is evenly mixed/distributed. We wait for temperature to stabilize and water to start bubbling before recording it.

Effects of Salt in Boiling Water:

Table

NO.	Amount of salt	BOILING TEMPERATURE ℃
1	150ml water, without salt.	96℃
2	150ml water, with 2 pinches of salt.	96℃
3	150ml water, with 4 pinches of salt.	95℃
4	150ml water, with 6 pinches of salt.	95.5℃

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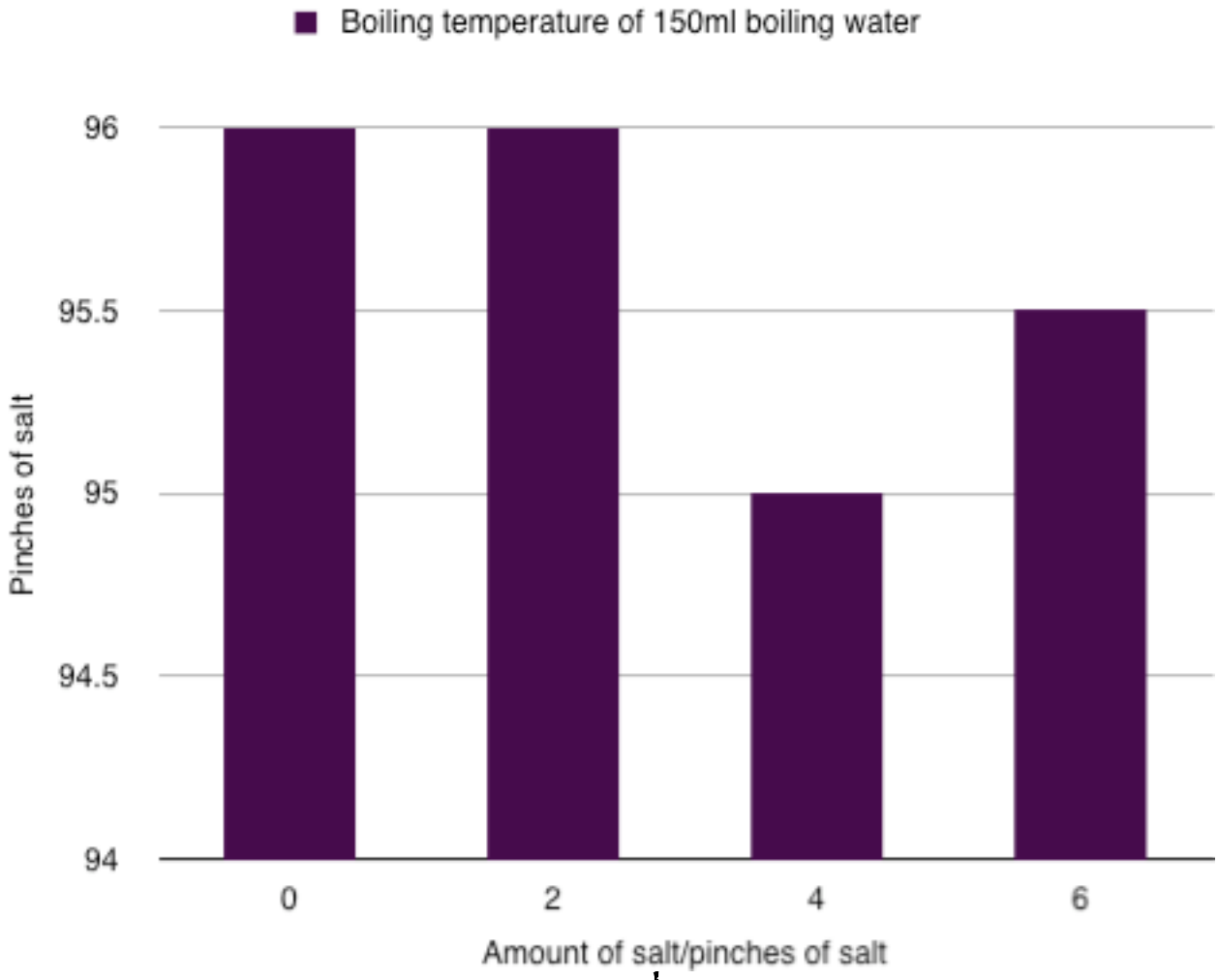
Effects of Salt in Boiling Water:



Graph

Conclusion:

In conclusion, we found out that with the more salt, the lower the temperature. Although, the temperature did not decrease much at all, but did go down a little. With each additional pinch of salt, the temperature of

the boiling water either stayed the same, or decreased up to 1 degree or less. So surprisingly, we found out that instead of increasing, the temperature of boiling water will decrease when salt is added. The results we found, prove that our hypothesis was incorrect. How would I explain the result of the experiment? Adding salt might have decreased the cohesion forces between water molecules. When water molecules are less attracted to each other, it's easier for them to escape! And therefore lowering the boiling temperature of water.

Evaluation:

The following suggestion might increase the accuracy of the experiment:

1. Measure salt by the weight (using electronic balance) instead of using teaspoon.
2. Repeat the experiment using another brand of salt.
3. Repeat the experiment using the same salt to check that the same results are obtained.
4. Use another thermometer in repeated experiment to check that the thermometer is working correctly.
5. Use distilled water instead of tap water as tap water contains traces of minerals.